Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

Claims 1-43 (cancelled)

Claim 44 (original) A method for delivering ions to a vacuum chamber comprising:

(a) providing first, second, and third electric field regions in an ionization chamber, wherein each region has a direction;

(b) producing ions from a sample dispensed by an electrospray assembly at approximately ground potential into the ionization chamber; and

(c) transporting the ions in order through the first, second, and third electric field regions and into the vacuum chamber such that the ions travel in a direction that forms:

(i) a first angle with respect to the first electric field direction when the ions are in the first electric field regions;

(ii) a second angle with respect to the second electric field direction when the ions are in the second electric field region; and

(iii) a third angle with respect to the third electric field direction when the ions are in the third electric field region,

wherein the first and third angles are each no greater than 90° and the second angle is greater than 90°.

Claim 45 (previously added) An apparatus for delivering ions to a vacuum chamber comprising:

an enclosing ionization chamber including an ionization region and a vacuum interface at a vacuum interface voltage, wherein the vacuum interface allows the ionization chamber to communicate with the vacuum chamber;

a first electrode disposed sufficiently close to the dispensing end at a first electrode voltage of sufficiently high magnitude to provide a first electric field region to form ions in the ionization region and to attract the ions from the ionization region;

a second electrode disposed in the ionization chamber at a second electrode voltage to provide a second electric field region that repels the ion to a greater degree than the first electrode voltage; and

means for generating a gaseous stream in a gas flow path extending from the first electrode to the second electrode, wherein the gaseous stream provides the ion with sufficient velocity to overcome repulsion by the second electrode,

wherein the vacuum interface voltage provides a third electric field region that is more attractive to the ion than the second electrode field region.

Claim 46 (previously added) The apparatus of claim 45, wherein the first electrode includes a first electrode aperture and the gas flow path extends from the first electrode aperture to the second electrode.

Claim 47 (previously added) The apparatus of claim 45, wherein the second electrode includes a second electrode aperture and the gas flow path extends from the first electrode

to the second electrode aperture.

Claim 48 (previously added) The apparatus of claim 45, wherein the first and second electrodes each comprise a flat surface substantially parallel to each other.

Claim 49 (previously added) The apparatus of claim 48, wherein the gas flow path is substantially orthogonal to the flat surfaces of the first and second electrodes.

Claim 50 (previously added) The apparatus of claim 45, wherein the vacuum interface communication with the vacuum chamber in a direction that intersects with the gas flow path.

Claim 51 (previously added) The apparatus of claim 50, wherein the direction is substantially orthogonal to the gas flow path.

Claim 52 (previously added) The apparatus of claim 45, wherein the first electrode, the second electrode, or both comprise a mesh portion.

Claim 53 (previously added) The apparatus of claim 45, wherein the vacuum interface comprises an aperture in a plate.

Claim 54 (previously added) The apparatus of claim 45, wherein the vacuum interface comprises a conduit having an axial bore.

Claim 55 (previously added) The apparatus of claim 54, wherein the conduit is metallic.

Claim 56 (previously added) The apparatus of claim 54, wherein the conduit is substantially electrically insulating.

Claim 57 (previously added) The apparatus of claim 54, wherein the axial bore has a diameter of capillary dimension.

Claim 58 (previously added) The apparatus of claim 45, wherein the means for generating a gaseous stream represents a component of the electrospray assembly.

Claim 59 (previously added) The apparatus o claim 45, wherein the first and second electrode voltages have opposite polarity.

Claim 60 (previously added) The apparatus of claim 45, wherein the first electrode voltage is positive.

Claim 61 (previously added) The apparatus of claim 45, wherein the first electrode voltage is negative.

Claim 62 (previously added) The apparatus of claim 45, wherein the interface voltage is approximately at ground.

Claim 63 (previously added) The apparatus of claim 45, wherein the ionization chamber is electrically connected to the electrospray assembly.

Claim 64 (previously added) The apparatus of claim 45, wherein the ionization chamber is at approximately atmospheric pressure.

Claim 65 (previously added) The apparatus of claim 45, further comprising a scupper electrically attached to a downstream surface of the second electrode.

Claim 66 (previously added) The apparatus of claim 21, wherein the scupper is at least partially constructed of mesh.

Claim 67 (previously added) A method for delivering ions of a sample from an electrospray assembly to a vacuum chamber comprising:

(a) injecting a sample from the electrospray assembly into an ion region of an enclosed ionization chamber, wherein the electrospray assembly has a dispensing end at approximately ground potential disposed within the ionization chamber;

(b) charging a first electrode within the ionization chamber to a first voltage to provide a first electric field region having an electric potential sufficiently high to produce an ion from said sample in the ionization region;

(c) producing gas flow in a path extending from the first electrode to a second electrode having a second voltage to transport the ion away from the first electrode and past the second electrode, wherein the second voltage provides a second electric field region

having an electric potential that is more repulsive to the ion than the electric potential of the first electric field region; and

(d) maintaining a vacuum interface between the ionization chamber and the vacuum chamber at an interface voltage that provides a third electric field region having an electric potential that is more attractive to the ion than the electric potential of the second electric field region such that the ion travels through the vacuum interface and into the vacuum chamber.

Claim 68 (previously added) The method of claim 67, wherein the first electrode includes a first electrode aperture and the gas flow path extends from the first electrode aperture to the second electrode.

Claim 69 (previously added) The method of claim 67, wherein the second electrode includes a second electrode aperture and the gas flow path extends from the first electrode to the second electrode aperture.

Claim 70 (previously added) The method of claim 67, wherein the first and second electrodes each comprise a flat surface wherein the surfaces are substantially parallel to each other.

Claim 71 (previously added) The method of claim 70, wherein the gas flow path is substantially orthogonal to the flat surfaces of the first and second electrodes.

Claim 72 (previously added) The method of claim 67, wherein the vacuum interface communicates with the vacuum chamber in a direction that intersects with the gas flow path.

Claim 73 (previously added) The method of claim 72, wherein the direction is substantially orthogonal to the gas flow path.

Claim 74 (previously added) The method of claim 67, wherein the first electrode, the second electrode, or both comprise a mesh portion.

Claim 75 (previously added) The method of claim 67, wherein the vacuum interface comprises an aperture in a plate.

Claim 76 (previously added) The method of claim 67, wherein the vacuum interface comprises a conduit having an axial bore.

Claim 77 (previously added) The method of claim 76, wherein the conduit is metallic.

Claim 78 (previously added) The method of claim 76, wherein the conduit is substantially electrically insulating.

Claim 79 (previously added) The method of claim 76, wherein the axial bore has a diameter of capillary dimensions.

Claim 80 (previously added) The method of claim 67, wherein the gas flow is produced by a component of the electrospray assembly.

Claim 81 (previously added) The method of claim 67, wherein the first and second electrode voltages have opposite polarity.

Claim 82 (previously added) The method of claim 67, wherein the first electrode voltage is positive.

Claim 83 (previously added) The method of claim 67, wherein the first electrode voltage is negative.

Claim 84 (previously added) The method of claim 67, wherein the interface voltage is approximately at ground.

Claim 85 (previously added) The method of claim 67, wherein the ionization chamber is electrically connected to the electrospray assembly.

Claim 86 (previously added) The method of claim 67, wherein the ionization chamber is at approximately atmospheric pressure.

Claim 87 (previously added) The method of claim 67, further comprising providing a scupper electrically attached to a downstream surface of the second electrode.

Claim 88 (previously added) A method for delivering ions of a sample from a dispensing end of an electrospray assembly to a vacuum interface between an enclosed ionization chamber and a vacuum chamber, comprising:

(a) injecting said sample from the dispensing end of said electrospray assembly into said ionization chamber;

(b) providing a first electric field region adjacent said dispensing end that is sufficiently attractive to ions to produce ions from said sample;

(c) providing a second electric field region between said first electric field regions and said vacuum interface that is more repulsive of said ions than said first electric field region;

(d) producing a gas flow in a path extending from said first electric field region to said second electric field region to transport said ions from said first electric field region through said second electric field region; and

(e) providing a third electric field region between said second electric field region and said vacuum interface that is more attractive to said ions that said electric field region to enable said ions to travel through said vacuum interface and into said vacuum chamber.

89. (previously added) The method of claim 88, wherein the dispensing end of said electrospray assembly is at approximately ground potential.

90. (previously added) The method of claim 89, wherein said vacuum interface is at approximately ground potential.

91. (new) An apparatus for delivering ions to a vacuum chamber, comprising:

(a) an electrospray assembly at approximately ground potential;

(b) a first electrode disposed sufficiently close to the electrospray assembly and being at a first electrode voltage for creating an electric field for forming and moving ions;

(c) a second electrode disposed sufficiently close to the first electrode and being at a second electrode voltage for providing a second electric field for repelling ions, wherein a gaseous stream is provided to help the ions overcome the repulsion forces of the second electrode; and

(d) a vacuum interface for providing a third electric field for attracting the ions from the gaseous stream.

92. (new) The apparatus of claim 91, wherein the first electrode comprises a first electrode aperture and defines a gas flow path.

93. (new) The apparatus of claim 91, wherein the second electrode comprises a second electrode aperture and defines a gas flow path.

94. (new) The apparatus of claim 91, wherein the vacuum interface comprises a conduit.

95. (new) The apparatus of claim 91, wherein the first electrode voltage is negative.

96. (new) The apparatus of claim 91, wherein the second electrode voltage is negative.

97. (new) The apparatus of claim 91, wherein the first electrode voltage is positive.

98. (new) The apparatus of claim 91, wherein the second electrode voltage is positive.

99. (new) The apparatus of claim 91, further comprising an ionization chamber for enclosing the electrospray assembly, first electrode, second electrode and vacuum interface.

100. (new) A method for moving ions from a grounded electrospray assembly to a vacuum chamber, comprising:

(a) providing a first electrode and first electrode field for producing and moving ions;

(b) providing a second electrode and second electrode field for repulsing the ions provided from the first electrode field;

(c) providing a vacuum interface and gas stream for moving the ions from the second electrode to the vacuum chamber.